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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/380,270	08/27/1999	ANDERS THUREN	104-248P	2398

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EXAMINER	
POKRZYWA, JOSEPH R	

ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/380,270	THUREN, ANDERS	
	Examiner	Art Unit	
	Joseph R. Pokrzywa	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/1/04 has been entered.

Response to Amendment

2. Applicant's amendment was received on 7/1/04, and has been entered and made of record. Currently, **claims 1-14** are pending.

Response to Arguments

3. Applicant's arguments, see pages 7 and 8, filed 7/1/04, with respect to the rejection(s)of claim(s) 1 and 14 under 35 U.S.C.102(b), as being anticipated by Teitzel *et al.* (U.S. Patent Number 5,533,170), have been fully considered and are persuasive. The examiner concedes that Teitzel fails to expressly disclose if the second conversion is performed in at least two of the beam processor units. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made further in view of Kelley *et al.* (U.S. Patent Number 5,701,405).

Specification

4. The objection to the specification, as cited in the Office action dated 5/3/04, is overcome by the changes set forth in the amendment dated 7/1/04.

Claim Objections

5. **Claims 1 and 14** are objected to because of the following informalities:

In ***claim 1***, line 7, "the geometries to be written on the plate" should read "~~the~~ geometries to be written on ~~the~~ a plate";

in ***claim 1***, line 10, "in the fractured database" should read "in ~~the~~ a fractured database";

in ***claim 1***, line 12, "per-forming" should read "performing";

in ***claim 14***, lines 7 and 8, "the geometries to be written on the plate" should read "~~the~~ geometries to be written on ~~the~~ a plate"; and

in ***claim 14***, line 12, "in the fractured database" should read "in ~~the~~ a fractured database".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Teitzel *et al.* (U.S. Patent Number 5,533,170, cited in the Office action dated 5/3/04) in view of Kelley *et al.* (U.S. Patent Number 5,701,405).

Regarding ***claim 1***, Teitzel discloses a method for fast and accurate writing of very complex patterns on a light sensitive surface (see abstract, and column 3, line 44 through column 4, line 31) comprising the steps of providing at least two modulated focused laser beams scanning the surface in interlaced parallel scan lines (column 3, line 44 through column 4, line 31), providing for each beam a beam processor unit with data conversion logic and means for modulating the laser beam (column 7, lines 3 through 32, and column 11, lines 30 through 41), providing input data containing the geometries to be written on the plate in an input format (column 7, line 36 through column 8, line 23), in a first conversion step fracturing the input data into writing fields (column 7, lines 36 through 62), in a second conversion step cutting the geometries in the fractured database into scan lines (column 8, line 54 through column 9, line 53), and generating for each scan line a scan list containing geometries to be written in the scan line, so called segments (column 9, line 19 through column 10, line 12), and performing the second conversion step in at least two parallel processors, so called segmentizers (column 9, line 19 through column 11, line 28), operating simultaneously but on different writing fields (column

11, line 30 through column 12, line 10), further distributing the scan lists to the beam processor units in accordance with the interlacing of the scan lines (column 10, line 63 through column 11, line 28), and in a third conversion step converting in the beam processor units the scan lists of segments to analog power modulation sequences for the laser beams (column 12, lines 11 through 39).

However, Teitzel fails to expressly disclose if the second conversion step is performed in at least two of the beam processor units, operating simultaneously but on different writing fields. Kelley discloses a method for fast and accurate writing of very complex patterns on a light sensitive surface (see abstract, column 1, line 18-column 2, line 61, and column 4, line 45-column 5, line 26) comprising the steps of providing for each beam a beam processor unit with data conversion logic and means for modulating laser beams (column 4, line 45-column 6, line 46, see Fig. 5, rendering pipelines 510_1, 510_2, and 510_N), providing input data containing the geometries to be written on the plate in an input format (column 5, line 11-column 6, line 8), in a first conversion step fracturing the input data into writing fields (column 5, line 27-40), in a second conversion step cutting the geometries in the fractured database into scan lines (column 5, line 41-column 6, line 46), and generating for each scan line a scan list containing geometries to be written in the scan line, so called segments (column 6, line 9-column 7, line 52), and performing the second conversion step in at least two of the beam processor units, so called segmentizers (see Fig. 5, column 5, line 41-column 6, line 46), operating simultaneously but on different writing fields (column 5, line 41-column 6, line 46), further distributing the scan lists to the beam processor units in accordance with the interlacing of the scan lines (column 5, line 56-column 6, line 8).

Teitzel & Kelley are combinable because they are from the same field of endeavor, being systems that render image data in scan lines using generated lists having geometric data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the rendering pipeline taught by Kelley in the system of Teitzel. The suggestion/motivation for doing so would have been that Teitzel's system would become more efficient, as the rendered data would be generated in a fast and inexpensive way, as recognized by Kelley in column 10, line 62-column 11, line 19. Therefore, it would have been obvious to combine the teachings of Kelley with the system of Teitzel to obtain the invention as specified in claim 1.

Regarding ***claim 2***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that the segments in the scan lists are simplified geometrical representations of those parts of the input geometries that fall in the scan line (column 7, line 46 through column 8, line 37).

Regarding ***claim 3***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that the segments in a scan lists are non-overlapping (column 8, lines 24 through 52).

Regarding ***claim 4***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the segments in a scan lists are rectangles with a length and a width (column 8, lines 1 through 37).

Regarding ***claim 5***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that the segments in the scan lists are sorted in the order they will be written by the scanning beam (column 8, lines 1 through 52).

Regarding ***claim 6***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the conversion in the beam processor units uses a set of conversion rules that are empirically calibrated (column 1, lines 33 through 50, and column 5, line 58 through column 6, line 20).

Regarding ***claim 7***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the conversion in the beam processor units uses at least one table-lookup function (column 12, line 5 through column 13, line 25).

Regarding ***claim 8***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the scan lists are distributed to the beam processor units via a cross-switch network (see Fig. 5, 8, and 9, column 7, lines 3 through 25, column 11, lines 42 through 65, and column 14, line 15 through column 15, line 16).

Regarding ***claim 9***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the scan lists are distributed to the beam processor units via a bus-system (see Figs. 5, 6, and 9, column 13, line 27 through column 15, line 16).

Regarding ***claim 10***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the scan lists are distributed to the any one of the preceding claims beam processor units by a multiplexer (MUX 806, 808, 809, seen in Fig. 8, column 12, lines 21 through 30).

Regarding ***claim 11***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in the data are pipelined through the second and third conversion steps without intermediate non-volatile storage (column 11, line 54 through column 12, line 20).

Regarding ***claim 12***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that in beam boards has an input buffer with room for the scan lists for at least two writing fields (column 11, lines 54 through 65).

Regarding ***claim 13***, Teitzel and Kelley disclose the method discussed above in claim 1, and Teitzel further teaches that the transfer between the segmentizers and the beam processor unit are double buffered, in one output buffer in the segmentizer and in one input buffer in the beam processor unit (column 12, lines 5 through 30).

Regarding ***claim 14***, Teitzel discloses an apparatus for fast and accurate writing of very complex patterns on a light sensitive surface comprising at least two modulated focused laser beams scanning the surface in interlaced parallel scan lines (see abstract, and column 3, line 44 through column 4, line 31), for each laser beam a beam processor unit with data conversion logic and means for modulating the laser beam (column 7, lines 3 through 32, and column 11, lines 30 through 41), means for accepting input data containing the geometries to be written on the plate in an input format (column 7, line 36 through column 8, line 23), data processing means for in a first conversion step fracturing the input data into writing fields (column 7, lines 36 through 62), parallel data processing means for in a second conversion step cutting the geometries in the fractured database into scan lines (column 8, line 54 through column 9, line 53), and generating for each scan line a scan list containing geometries to be written in the scan line, so called segments (column 9, line 19 through column 10, line 12), data distribution means for distributing the scan lists to the beam processor units in accordance with the interlacing of the scan lines (column 10, line 63 through column 11, line 28), and data conversion and beam modulation means in the beam processors units for in a third conversion step, converting the scan lists of

segments to analog power modulation sequences for the laser beams (column 12, lines 11 through 39).

However, Teitzel fails to expressly disclose if the second conversion step is performed in at least two of the beam processor units, operating simultaneously but on different writing fields. Kelley discloses an apparatus (see Figs. 4 and 5) for fast and accurate writing of very complex patterns on a light sensitive surface (see abstract, column 1, line 18-column 2, line 61, and column 4, line 45-column 5, line 26) comprising a beam processor unit for each beam with data conversion logic and means for modulating laser beams (column 4, line 45-column 6, line 46, see Fig. 5, rendering pipelines 510_1, 510_2, and 510_N), means for accepting input data containing the geometries to be written on the plate in an input format (column 5, line 11-column 6, line 8), data processing means for in a first conversion step fracturing the input data into writing fields (column 5, line 27-40), parallel data processing means in the beam processor units for in a second conversion step cutting the geometries in the fractured database into scan lines (see Fig. 5, column 5, line 41-column 6, line 46), and generating for each scan line a scan list containing geometries to be written in the scan line, so called segments (column 6, line 9-column 7, line 52), data distribution means for distributing the scan lists to the beam processor units in accordance with the interlacing of the scan lines (column 5, line 56-column 6, line 8).

Teitzel & Kelley are combinable because they are from the same field of endeavor, being systems that render image data in scan lines using generated lists having geometric data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the rendering pipeline taught by Kelley in the system of Teitzel. The suggestion/motivation for doing so would have been that Teitzel's system would become more

efficient, as the rendered data would be generated in a fast and inexpensive way, as recognized by Kelley in column 10, line 62-column 11, line 19. Therefore, it would have been obvious to combine the teachings of Kelley with the system of Teitzel to obtain the invention as specified in claim 14.

Citation of Pertinent Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Iwasaki *et al.* (U.S. Patent Number 5,980,088) discloses a laser drawing apparatus; and

Kelley *et al.* (U.S. Patent Number 5,706,415) discloses a system of generating pixel values using an object description.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joe Pokrzywa whose telephone number is (703) 305-0146. The examiner can normally be reached on Monday-Friday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph R. Pokrzywa
Examiner
Art Unit 2622

jrp